Short Safety Subject

Additional Short Safety Subjects are available on the First Region (ROTC) Web Site at:

www.rotc1.bragg.army.mil/SAFETY/SSS1.htm

Avoiding Electrical Shocks

Electrical hazards can be found everywhere. Avoiding electrical shocks both at home and at work requires awareness of the hazards and a respect for this "SILENT KILLER." The human body has a low resistance to electricity, making it a good conductor, like most metals. Unlike metals however, the human body does *not* respond well when electricity passes through it. Physical results include thermal burns, disruption of normal heart activity, severe muscle contractions, and even death.

The most common and serious electrical injuries occur when electrical current flows between the hands and feet. This happens when a person touches an energized line. The electrical energy is looking for the shortest path to the ground, and it will pass through the body to the feet to reach it. When this occurs, a person's heart and lungs are frequently damaged by the electrical energy.

Placing an insulator between the energy and the point of physical contact is one method of protection. Porcelain, rubber, pottery and dry wood offer substantial resistance to the flow of electricity, and are therefore good insulators. These materials can often protect a person from electrical shock.

Precautions for avoiding electrical shocks include, but are not limited to, the following:

- Always make sure electric tools are properly grounded or double insulated. The double insulated tool must have an undamaged outer case and be clearly labeled as "double insulated" by the manufacturer.

- Always check to be sure the grounding system is complete. Unless they are designated as double insulated, grounded power tools must be attached to a grounded service circuit. If there is *any* doubt about the grounding, test it! (Ground testers are inexpensive.)

- Use heavy duty grounded extension cords. These cords have two layers of insulation, with reinforcement between the layers. They are less susceptible to damage than household type cords. To check if the cord is heavy duty, check its shape. Most *flat* cords are not heavy duty. Heavy duty cords will have a marking on the insulation such as: "S", "SJ", "SJO".

- Avoid mixing water and electricity! Not only keep cords, tools and working/walking surfaces dry, keep your hands and feet dry as well. The electrical resistance of wet skin is at least 100 times less than dry skin. Wet skin greatly increases the likelihood of severe shock if a person comes in contact with a live circuit. If you must work around water, connect to a Ground Fault Circuit Interrupter (GFCI) to automatically shut off the current if there is an abnormal current flow.

- Never work on or around a live electrical circuit. *Lock Out* the power so that *only you* have control over energizing the machine or equipment. Don't take chances.